

CLAIMS :

1. A multiplexing control system characterized by comprising plural sensors which detect a same state
5 variable in a process; plural digital controllers which are inputted of a process signal detected by the plural sensors and output a control signal for the process and one of which operates as a master; and a process input/output unit which is provided in common
10 for the plural digital controllers and distributes plural process signals detected by the plural sensors respectively to the plural digital controllers.
2. A multiplexing control system including a plural
15 microcomputers for controlling a plant and a process input/output unit, characterized in that a single process input/output unit is connected to the plural microcomputers via plural interface boards.
- 20 3. A multiplexing control system according to claim 2, characterized in that the system is further added a function which, when inputting a plant process state variable to the microcomputers, the plant process state variable is inputted to the plural microcomputer
25 through a master interface board according to a master/slave relationship set in advance for the interface boards.

4. A multiplexing control system according to claim 2, characterized in that the system is further added a function which, when outputting a plant process state variable to the microcomputers, the plant process state variable is outputted to the process input/output unit only through a master interface board according to a master/slave relationship set in advance for the interface boards.
- 10 5. A multiplexing control system according to claim 2, characterized in that the system is further added a function which causes to match information within the plural interface boards by accommodating the number of the interface boards corresponding to the number of the microcomputers in a single process input/output unit.
- 15 6. A multiplexing control system in which process input/output units which input/output process signals are provided for every process signal, characterized in that a redundancy structure of each of the process input/output units which inputs/outputs a concerned process signal is varied depending on the type of the process signals and further a signal of a process input/output unit having small redundancy is designed to be inputted/outputted via a process input/output unit having large redundancy.
- 20
- 25

7. A multiplexing control system in which process input/output units which input/output process signals are provided for every process signal, characterized in that the process signal of a "high" importance is triplexed as well as a process controller having a processing function is provided for each of the triplexed input/output units, the process input/output unit for the process signal of an "intermediate" importance is diplexed, the process input/output unit for the process signal of a "low" importance is monoplexed as well as the output of the respective process signals of the diplexed input/output unit and the monoplexed input/output unit is designed to be processed by either of the process controllers.

15

8. A multiplexing control system according to claim 7, characterized in that by designating one of the triplexed process controllers as having a master right the system is constituted in such a manner that the output control of the diplexed input/output unit and the monoplexed input/output unit is performed by the unit having the master right.

9. A multiplexing method of a control system in which process input/output units which input/output process signals are provided for every process signal, characterized in that the redundancy structure of the

25

input/output units for inputting and outputting process signals are either triplexed, diplexed or monoplexed depending on importance of the process signals.